Cardiopulmonary exercise: A recently discovered secret of tai chi

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Every piece of literature or book about tai chi claims it to be the supreme martial art (soft style) and a therapeutic exercise. Nevertheless, none of the authors can describe scientifically how and why it works. Many people did not gain any health benefit in practicing tai chi and only very few people were able to apply its legendary secret power. During the last 10 years, the author thought he had discovered the secret in Hong Kong and brought it to Los Angeles. The secret lies in the fundamental movements of the body, called tai chi basic exercise routines. The entry level of the exercise has many similarities with medical treatments for respiratory illness[1, 2] and with walking exercise—the most recommended aerobic exercise for coronary artery disease[3,4, 5, 6].

Method

The exercise consists of 4 phases: Posture, swingingelbows, breathing and, again, swinging elbows.

1. Posture

A. Alignment

In a normal standing position, the muscles of the body are always in tension, aiding in balancing the body's weight. This tension increases oxygen consumption and decreases cardiac output.

The body can be considered to be in 3 layers, one on top of the other. The middle layer is the pelvis; above and below are the top and bottom layers respectively. The composite center of gravity should be in the midline of the body and also at the center of lhe pelvis.

This composite center of gravity in the middle layer should be supported evenly by both heels.

This position is called "neutral" which obviously keeps oxygen consumption and work load of the heart at a base level.

B. Dropping the shoulders

Both arms should hang freely from the shoulders, slight downward force at the elbows should pull down the shoulders. This movement is called "sinking elbows," and it can be done only when "neutral" is achieved, ie the whole arm is floppy.

The rib cage consequently is lowered and locked. This "tightens" or controls the central nervous system[6, 7, 8, 9]. It also forces one to concentrate on breathing with the diaphragm muscle. The other muscles in the body, at this point, should become totally relaxed; the arteries will become dilated.

2. Swinging elbows

All aerobic exercises involve unconscious swinging of the elbows[5, 7, 10]. The effectiveness depends on the degree of "sinking" of the elbows. One should maintain the slight downward force at the elbows and swing them gently forward and backward, not just the forearms. This should be done for 2 minutes. Oxygen consumption and cardiac output will increase rapidly, the result of the predominant supply of anaerobic energy; hence, the recommended 2 minutes only.

3. Breathing

After the anaerobic provided in the "alignment" is used up, the work load on the legs gradually increases and the energy supply is derived predominantly aerobically.

One must inhale through the nose and exhale through the mouth, using the voice with a high-pitched tone, "aah." Do it as slowly as possible. The breathing should utilize the diaphragm muscle. The vibration created by the high-pitched tone, "aah," will improve clearance of secretions and reduce mental tension. The diaphragmatic breathing will increase oxygenation and improve ventilation[1, 2, 7]. The swinging of the elbows should be stopped during this phase.

4. Swinging the elbows again

Repeat phase 2 for as long as you wish. It is recommended that the duration should be between 2 and 5 times what it was in phase 2. There should not be any shortness of breath after the completion of phase 3. The strategy of phase 4 is to increase the use of aerobic energy and exercise tolerance.

Results

The author has made many attempts to interest medical professionals, institutions and organizations to research this topic, but none were interested. The author does not have the facility nor the equipment available to measure the results with respect to heart rate, blood pressure, cardiac output and oxygen consumption, etc. The data below came as a result of observations by students and attendees in the workshop:

1. After walking the "Alignment," all participants could feel a weight on their legs that they had not experienced before.

2. During the exercise, all participants felt the cool and fresh air entering their lungs that they had never been aware of before.

3. All participants agreed there was a big increase in breathing capacity.

4. During phase 4, the hands of all the participants were

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warm or even hot, and the fingers were suffused with blood.

5. After the exercise routine, those who had backaches or knee aches before the workout claimed the pains were gone.

6. After one week of regular exercise, those who had high blood pressure claimed there was a drop of 10 to 15mm Hg systolic at rest.

7. After one week of regular exercise, all participants claimed that they had more energy in their daily work (documentation of this is planned in the future).

Discussions

Based on the method and results mentioned above, the exercise routine serves as a preventing and/or a rehabilitating exercise for both pulmonary and cardiovascular diseases. The magnitude of its effects goes beyond that of just walking.

The key to the success of this routine is "Alignment" and "Sinking elbow". It is very difficult for a person to adjust his/her own alignment and to sink elbows. The author has held a few workshops at the Star of the Sea Church on this exercise routine and the results have been satisfactory so far.

There is enough evidence to show that the reduction of risk factors (stress, hypertension, cholesterol) through aerobic exercise may influence the prognosis in coronary artery disease[1, 6, 10, 11, 12]. However, there is still no scientific evidence to prove that the effects of exercise can prolong life or prevent a repeat myocardial infarction. Because the size of the cohort in our study was too small, it is of limited significance at present. However, our program seems to be beneficial and our students and attendees do not drop-out, but rather they return for a repeat and re-evaluation. The exercise mentioned above may be a good start. It can be practiced anywhere, anytime. Above all, its effects can be experienced immediately after the exercise routine is finished.

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TEARS OF JOY

Thousands of patients have rung my door bell.
They come in for treatment ... even though they are well.
Well ... but yet troubled ... about some defect,
Hoping it's something ... that I can correct—

I never expected ... an effect so profound
Could result from such work (in a green cap and gown).
I never suspected cosmetic repair
Could effectively heal so much hidden despair!

I knew well the worth of repairing a victim
Of a terrible accident ... and I remembered the diction
"First do no harm", not by drugs nor by knife—
But we're also to look at one's quality of life ...

At how folks relate to the world where they live—
At a person's ability to receive and to give—
At physical barriers at the employment gate,
And stuff that impedes one's choice of a mate.

Could fixing a nose or giving a breast
Be as important ... as a cold in the chest?
Or curing sore throats or removing gall bladders ...
And a voice from inside said, "this work really matters".

Would giving a chin or fixing a face
Ever compete in the healing art's race?
Could making one feel he or she is **normal** at last
Ever compare with a leg in a cast?

The patients I've watched for twenty-five years
Who are moved to such joy that their eyes fill with tears
Just viewing a change in some "trivial" part—
It can't help but register deep in my heart.

Patients like those should never ever lose
The option to change, the option to choose—
The option to own the best self-esteem,
The option to become what they dared once to dream.

Would all those patients make the same choice
If well informed by a loud and clear voice?
Would they choose surgery with risks understood?
I've watched it so often, I **know** that **they would!**

Robert S. Flowers MD
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